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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,818	01/21/2005	Koji Yamada	12065-0020	2397

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EXAMINER	
YANG, JIE	
ART UNIT	PAPER NUMBER
1793	
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06/05/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/521,818	YAMADA ET AL.	
	Examiner	Art Unit	
	JIE YANG	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3 and 4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1,3,4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is to acknowledge the receipt of "applicant argument/remarks" filed on 02/27/2008. Claims 2, 5-7 are cancelled; Claims 1 and 4 have been amended from original claims; Claims 1, 3 and 4 are pending in application.

Status of the Precious Rejection

The previous rejections of claims 1, 3, and 4 are maintained. The new amended limitations in the instant claim 1 and 4 are addressed as following. New prior art Jones et al (US 6,699,302 B1, Thereafter US'302) is cited.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ezawa et al (US 5,252,305, thereafter, US'305) in view of Yamada (JP 2000-248322, thereafter, JP'322) and further in view of Jones et al (US 6,699,302 B1, Thereafter, US'302).

US'305 in view of JP'322 is applied to the claims 1 and 4 for the same reason as stated in the previous rejection dated 11/28/2007.

US'305 in view of JP'322 does not specify the newly added limitation that the copper content of molten slag in the furnace is ascertained by sampling and analyzing. US'302 teaches a recovering process for platinum group metals (PGMs) (Col.3, line 58 to Col.4, line 3 of US'302). US'302 teaches the analyses of the original concentrate, roasted concentrate, and slag (Col.18, line 31 to Col.20, line 53 of US'302). US'302 teaches the similar PGMs recovering process using the similar electric furnace (Col.13, line 54 to Col.20, line 53 of US'302) as recited in the instant invention. Therefore, it would have been obvious to one skilled in the art to apply the slag analysis and monitoring process of US'302 in the process of US'305 in view of JP'322, because US'302 teaches high recovery of the precious metals (99.0%) could be obtained (Col.19, line 28 to Col.20, line 53 of US'302).

Regarding the limitation of the copper source material is composed of granular of an average grain diameter of not less than 0.1 mm and not greater than 10 mm, as pointed out in the previous office action marked 11/28/2007, the average grain diameter of copper source material is recognized as a result-effective variable in term of dust losses and recover ability of platinum group elements. This point is further evidenced by US'302. US'302 teaches the DC arc furnace can handle fine feed

materials, typically sized below 3 mm, which makes it well suited for coupling to a fluidized-bed roaster (Col.6, line 18-33 of US'302). More specific 100 to 600 μm particle range (Col.20, line 12-35 of US'302) is applied, which is within the claimed size range of copper source material as recited in the instant claims. Therefore, it would have been obvious to one skilled in the art to control average grain diameter of copper source material, for example, not less than 0.1mm and not greater than 10 mm as recited in the instant claim to increase the recovery rates of platinum group elements. See MPEP 2144.05 II.

Regarding the limitation of discharging the molten slag with Cu 3.0wt% or less, as pointed out in the previous office action marked 11/28/2007, the copper content in the molten slag is a result-effective variable in term of platinum group metal recovery rate as evidenced by JP'322. This point is further evidenced by US'302. US'302 teaches the Cu in slag is 5.55g in 1517g slag (0.36 wt%) in order to obtain a recovery of 99.0% PGMs (col.20, lines 24-53 of US'302). US'302 further teaches copper-nickel alloy containing the vast majority of the precious metals (Col.20, lines 24-35 of US'302).

Regarding the limitation of water-cooling the molten slag in claim 4, as pointed out in the previous office action marked

11/28/2007, US'305 teaches the layer of the copper oxide flown out and separated may be, after solidified by cooling and isolated, reused in the process for elevating the recovery ratio of the platinum (Col.3, lines 58-61 of '305) and the cooling and isolated is general enough to include water cooling method. This point is further evidenced by US'302, US'302 teaches forming particles of copper/nickel alloy by at least one of water atomization, granulation, or crushing and milling (Claim 19 of US'302) in order to obtain a suitable particle size (Col.6,lines 18-33 of US'302).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over US'305 in view of JP'322 and US'302 as applied on claims 1 and 4, and further in view of Yokoyama et al (US 5,735,933, thereafter US'933).

Claim 3 is dependent on claim 1, US'305 in view of JP'322 and US'302 teaches limitation of claim 1 as discussed above. US'933 is applied to the claim 3 for the same reason as state in the previous rejection dated 11/28/2007.

Response to Arguments

In the remark, the Applicant arguers that:

1) The Examiner admits that neither Ezawa (US'305) nor Yamada (JP'322) teaches the control of discharge of the molten slag based on copper content or the control of the grain size of the copper oxide source material.

In response, the Examiner disagrees the argument. As pointed out in the previous office action marked 11/28/2007, the average grain diameter of copper source material is recognized as a result-effective variable in term of dust losses and the recover ability of platinum group elements as evidenced by US'305; and the copper content in the molten slag is a result-effective variable in term of platinum group metal recovery rate as evidenced by JP'322. The new cited prior art Jones (US'302) further supports these points as discussed above.

2) the Applicants have demonstrated that unexpected results in terms of improved recovery rates occur through the control of the copper content and slag discharge.

In response, the Examiner notices prior arts (US'305 in view of JP'322 and US'302) teach that high recovery of PGMs is correlated to the low Cu content in slag. Specifically, US'302 teaches copper-nickel alloy containing the vast majority of the precious metals (Col.20, lines 24-35 of US'302). Therefore, it is not an unexpected result to improve recovery of PGMs through control the copper content in slag.

3) regarding claim 3, Yokoyama (US'933) is not similar to the processing of Ezawa and no reason to modify Ezawa so as to arrive at the method of claim 3.

In response, the Examiner disagrees the argument. First, the Applicant arguers the references individually and one cannot show nonobviousness by attacking

references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In the instant case, US'305 in view of JP'322 and US'302 as applied on claims 1 and 4, and further in view of Yokoyama et al (US 5,735,933, thereafter US'933) teaches the limitation of claim 3. As pointed out in the previous office action marked 11/28/2007, US'933 teaches a vacuum-heating processing method, which may be applied to all kinds of waste materials containing a variety of metals, allows recovery of highly pure individual metal components at a high yield (Col.3 line 1-5 of US'933). This is a good motivation to combine the US'933 with US'305 in view of JP'322 and US'302.

3) regarding claim 4, the Examiner would have to infer that the cooling was the claimed type that would produce the claimed average grain diameter of copper source material.

In response, please refer to the discussion in the above rejection for claim 4 related to the cooling method for particles' forming.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-2701884. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-2721244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JY

/Roy King/
Supervisory Patent Examiner, Art Unit 1793